

THE PSYCHOPHYSICAL PARALLELISM FROM FECHNER TO GESTALT ISOMORPHISM: THE SPINOZIAN ROOTS

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Abstract

There is a direct line that goes from Fechner's psychophysical parallelism to Gestalt isomorphism. My aim here is to show that, if the most direct philosophical antecedent of this line of theorising can be found in Spinoza, many aspects of it can be traced back to philosophers of different orientation, Christian like Tertullianus, or Jew like Maimonides, or Neoplatonic, like Ficino and Patrizi. To be sure, the most complete doctrine is Spinoza's one. My opinion is that rereading Spinoza today can help us also to fully understand what Fechner and Gestalt psychologists have yet to say to contemporary psychology.

Dualism v. monism

The historians of psychology have in general neglected the possibly primary aspects of Fechner's system (his *Naturphilosophie*, the *inner* psychophysics), as Scheerer (1987, 1991) has in different occasions pointed out. And it is curious that these aspects of Fechner's doctrine, in particular his *Naturphilosophie*, are considered often "bizarre", when they are deeply rooted in the Western philosophy. My focus, here, is the direct line that in the history of the mind-body problem, goes from Fechner's "psychophysical parallelism" (1851), to Mach (eg 1903), to Gestalt isomorphism (eg Köhler, 1938), and his philosophical antecedents. In Fechner, as in Mach and in most Gestalt psychologists, this stance was rightly a monistic position – a monism that cannot be considered in Cartesian terms neither idealistic nor materialistic, and therefore was called "neutral" by Bertrand Russell (1914). The philosophers of psychology (for instance, Bunge and Ardila, 1987) which consider the parallelism a "dualistic" position, are clearly wrong. It could also be considered an instance of the *identity theory* in Feigl's sense (1934) – this is the case of Köhler's isomorphism (see Köhler, 1960, p. 21-22).

The father of all this family of theorising about mind-body problem was undoubtedly Spinoza, as of every mind-body doctrine supporting an identity or a parallelism must be found in Spinoza. In particular, the doctrine of the psychophysical parallelism in Fechner is so strictly linked to the ideas of Spinoza that Fechner himself (1851, Vol. II, p. 155) states: "Von gewisser Seite erscheint unsere Ansicht ganz spinozistisch, ja, kann als reiner Spinozismus erscheinen." (For a comparison between Fechner and Spinoza, see Sprink, 1912). Sprink (*ibidem*, p. 62) so synthesizes with a nice image the differences between the two philosophers: "Bei Spinoza und Fechner haben wir das Gefühl, vor dem unendlichen Ozean zu stehen; aber wir sehen ihn bei beiden verschieden. Der Philosoph der klaren Erkenntnis zeigt uns trotz des hohen Wellenspiels auf der Oberfläche die ewige Ruhe in der Tiefe des Ozeans: bei dem Denker und Dichter empfinden wir hauptsächlich die Schönheit und Poesie in der Brandung." However, in Spinoza, according to Baensch (1907), one must distinguish three kinds of parallelisms: 1. Metaphysic; 2. Ideal; 3. Cognitive (*erkenntnistheoretische*). In Fechner the similarities are, in my opinion, between the second

and the third aspect, and the differences are overall for the first. We could say the same of Mach (1903, p. 38), which, pointing out his philosophical antecedents, states: “Sollte ich dieselben vollständig aufzählen, so müsste ich wohl bei Spinoza beginnen”.

For *Gestalttheorie* we have something more direct. As Michael Wertheimer (1974) points out, Spinoza was the first to pose the problem of the perceptual organisation. “Saying that a definition is perfect, it must explain the intimate essence of a thing and be able to not design instead its properties. To explain this issue, and neglecting other examples [...], I’ll take only the case of an abstract thing that is indifferent how it is defined: The circle. If it is defined as a figure, such that all straight lines drawn from the centre to the circumference are equal, everyone can see that such a definition does not in the last explain the essence of the circle, but solely one of its properties” (TIE, 95). We can see here an immediate antecedent of von Ehrenfels’ Gestalt qualities (1890). We know (see Luchins and Luchins, 1982; King and Michael Wertheimer, 2005) that yet child Wertheimer was acquainted with Spinoza’s ideas. In particular, “while he was till a child, Wertheimer’s reading of Spinoza probably offered a glimpse of the power of holism” (King and Michael Wertheimer, 2005, p. 42), holism that had to be a constant landmark of all Gestalt psychology. Furthermore, as we will see below, there is a direct line from Maimonides and Spinoza. As King and Michael Wertheimer (2005, p. 22) say, the parents strongly encouraged Max Wertheimer and his brother Walter to read religious books during their education. Therefore, it is quite possible that Wertheimer had known Maimonides, which was a milestone of the religious education in Jewish families at his time.

It is worth stressing that Spinoza influenced not only Wertheimer. The more direct reference is in Köhler’s book, “The place of Value in a World of Facts” (1938) – a book where the idea of isomorphism occupies a central position, with an entire chapter devoted to it. Here, a key idea is “requiredness”, that is, as Köhler *ibidem*, p. 62) states, directly drawn from Spinoza, and precisely: “In no case do we strive for, wish for, long for or desire anything because we deem it to be good, but on the other hand, we deem a thing to be good, because we strive for it, wish for it, long for it, or desire it” (E III, 9). The name of Spinoza is present in other remarkable Gestalt writings; I confine myself to recalling Henle’s outstanding essay on freedom (Henle, 1960).

One must notice that Spinoza seldom refers directly to Maimonides, and almost exclusively in the *Tractatus Theologico-politicus*. Here, he criticises severely the Jew theologian on the problems of the relationships between faith and understanding, quoting also long excerpts of the *Moreh Nevuchim*. Indeed, the parallels between Maimonides’ and Spinoza’s doctrines are deeper than one usually admits. For example, as Pearson (1883) noted, Spinoza’s definition of God looks almost like a translation of Maimonides’ one.

More interesting in our context is the parallel between “quality” and “matter”, and the attributes of thought and body in Spinoza’s doctrine. The following passages of the *Yad* could be very excerpts of the *Ethica*: “You can never see matter without quality, nor quality without matter, and it is only the understanding of man which abstractedly parts the existing body, and knows that it is composed of matter, and [that it also possesses] quality.” (p. 105); “All the planets and orbs are beings possessed of soul, mind and understanding. Moreover, they are alive, they exist, and know Him who spake [the word], and the Universe existed.” (p. 97-98). Here could be the echo of the celebrated E II, 13 S: “all things, while in different grades, however are animated”.

It is worth noting that for sure it is not here the origin of all pansychist *Allbeseelung* doctrines, that had deep roots in the Western philosophy. One could remember Christian thinkers like Tertullianus (210/1988, 19, 3-4), with the soul of the vegetables; the animulae (little souls) of the simple bodies of the Neoplatonic Ficino (1491/2005); or the “pampsychismus” of another Neoplatonic philosopher, Patrizi (Frane Petrić) from Cherso, the

creator of the term (1591, Pt. III).

However, as a matter of fact, it is better to be a little cautious on this matter. What Bernard translates as “quality”, specifying that could be interpreted as “intelligence”, could be nothing else than the Aristotelian “form” (see Cohen, 1927, p. 21). The Hebrew term is הרוצ that literally means *shape* or *form*, and in metaphysics it is opposed to רמוה , *substance* or *matter*. However, as Bernard (in Maimonides, 1181/1832, p. 82, fn. 2) points out, Maimonides uses in this context for matter מלוג, instead of רמוה. The definition of Angels as pure הרוצ (see below) can induce to justify Bernard’s translation. Anyway, “soul” is not הרוצ, but שפנ . Furthermore, as Malter (1912, p. 457-458) points out, in the Rabbinic literature of the Middle-Age most of the Hebrew authors draw a clear line between *soul* (שפנ) and *intellect*, that is לכש, not הרוצ.

Of course, it would be unfair to neglect also the differences between Maimonides’ and Spinoza’s doctrines. According to Maimonides, we can have quality (form, mind, הרוצ) without matter. It implies an ontological difference between the two, and not mere differences of attributes (and modes) of the same substance. A last point that should deserve a deeper analysis refers to the concepts of interaction of forces in Maimonides (1191/1910, I, § 72) and in Spinoza, that show a clear parallelism. These concepts anticipate the idea of field, as developed in contemporary physics, as Sachs (1976) has persuasively taught. And we know how important this idea in Gestalt psychology was in general, and on isomorphism in particular.

The first thing that one must have clearly borne in mind is that for Spinoza the *substance* (that is, for Spinoza, God) is eternal, without limits and undivided: “No limited substance exists” (K VI,2,1); “One cannot conceive no attribute of the substance, from whom follows that the substance can be divided” (E I,P12). When we consider a man, his body and his mind are only modes of appearance of the same substance: “mind and body are one and the same thing, which is conceived now under the attribute of thinking and now under the attribute of the extension” (E II,2S). The individual too is such only as a mode, as well for the body and for the soul, not for the substance that makes up it. However, Spinoza was also the first to propose a monistic solution by a true identity theory: “The mind and the body are one and the same thing, which is conceived now under the attribute of thought, now under the attribute of extension” (E III,2S). Of course, extension is the body, thought is the mind. This is also a clear introduction of the doctrine of identity that Spinoza introduces (E II,7S); and in a letter to S. J. De Vries (Ep XXX), Spinoza rejects the objection that giving two different names to mind and to body we imply that they are different things. He says that “one and the same thing can be stamped with two names”.

Note that an important distinction (but not always so clear) has to be made in Spinoza between *attribute* and *mode*. “For attribute I mean what the intellect perceives of a substance as constituent of its essence” (E I,D4); “For mode I mean the affections of a substance, that is what exists in other, by mean of whom it is also conceived” (E I,D5). The attributes are undivided; the modes refer to individuals.

I think that there is an almost perfect parallelism between this Spinozian conception of the substance in his relation with the body, and what Gestalt writers say. For example, Köhler (1960, p. 3-4) argues that there exists a substance that one can identify neither with the body nor with the mind. As substance, body changes continuously, as “the material of all organs of the body is continuously being eliminated, and at the same time replace, in the course of metabolic events” (ibidem). However, the same is true also for the mind: “the *self* is not a permanent entity [...] although, among the various states [...] there is a great deal of coherence” (ibidem).

One can find some contradiction between Spinoza and Köhler, because in Spinoza’s conception the substance can never change, is eternally so. In Köhler’s conception,

instead, there is an intense dynamics, with a continuous change in the arrangement of the substance. However, such contradiction is only seemingly real: in Köhler too the substance never change, it is its mode to compose the body that continuously changes. The body itself and the mind too, is in Köhler a coherent arrangement of steady states, in Spinoza a *mode*.

But let's go back to Spinoza, and let' try to see how his identity theory goes. A first proposition to consider says: "The order and the connection of the ideas are identical to the order and the connection of the things" (E II, 7P). In the Scholium Spinoza made clear that in saying this he refers to the relationship between thought and body: "we can conceive the nature under the attribute of the extension as well as under the attribute of the thought, or under any other attribute, but in every case we will find one and the same order, or one and the same connection of causes, that the same things that follow each other in both sides" (E II,7S). But, remember, "a mode of the extension and the idea of that mode are one and the same thing", and "the thinking substance and the extended substance are one and the same substance, which is understood now under this attribute, now under that" (ibidem). It follows that "the order of the actions and of the passions of our body is simultaneous in nature at the order of the actions and of the passions of the mind" (E II, 2S). In my opinion, this is the best possible definition of isomorphism in Köhler's sense.

We need now at least another step. The question is: how we can perceive, feel or image? Here we have in Spinoza a perfect solution of the problem. First, "in the extension there is no other *modification* than *motion* or *rest* [...]. So the human body is only a certain proportion of motion and rest" (KV A, 14). "So, the objective essence of this real proportion that is in the thinking attribute is (we can say) the mind of the body. And when one of these two modifications (motion or rest) varies more or less, also the idea varies proportionally" (KV A, 15). "And when the external causes, which produce these changes, differentiate themselves, and do not have all the same effects, it follows the difference of sensation" (KV A, 16). In other words, perception, sensation and feeling are the ideas in the thinking attribute (the mind) produced by changes in the state of the extensional attribute (the body). Here, however, "produced" has not to be meant in causal sense, because mind and body is the same thing; when external or internal causes modify the body, the idea is changed.

Of course, it would be at least utopic to try to find in Spinoza several key concept of Gestalt psychology, from the concept of field to self-organisation, and so on. However, there is an important point in Gestalt theorizing, in Köhler's version, that parallels surprisingly with Spinoza's doctrine: the relationship between mind and nature, with the discussion of the meaning of the evolution in psychological context.

Köhler (1938, 1950, 1960, 1971) was highly interested in settling the position of the psychology of Gestalt in reference to the doctrine of evolution. The solution that he gave was original, and at odd respect to the usual solutions of the other psychological schools. In this case, as in many other cases, one may say that Gestalt psychology escaped from a traditional antinomy, the one between anti-evolutionism and pro-evolutionism.

Indeed, Köhler (for instance, 1950, p. 289 f) opposed to the *principle of change*, or *development*, characterising evolution, a *postulate of invariance*, characterising actions of the physical world. Both are valid: the Vitalists only can maintain that the physical laws don't work in living bodies. Nevertheless, nobody can in same time deny that the time has produced significant changes in living organisms; that strong differentiations *emerge* during the evolution. Now, how can one reconcile invariance and change? Köhler's solution takes into account the concept of *constraint*, given conditions, which exclude certain possibilities of action: the physical laws act invariantly in the living bodies, but the constraints change with the evolution.

Notice that the constraints act also (and always) in the purely physical systems. "If a gas is surrounded by the firm walls of a container, the walls are constraints [...]"

thus the gas cannot expand as it would otherwise do” (1950, p. 291). For living systems, we can say that “while the general postulate of invariance in evolution claims that no essentially new kind of action appears [...] it imposes no limits upon the constraints which may develop when certain inanimate systems assume the characteristics of organisms, and when the various species acquire their distinguishing traits” (ibidem, p. 291). Note that “we cannot accept the statement that the explanation of all unlearned perceptual facts has to be given in terms of histological conditions [...]. It is only another form of the same mistake if all unlearned functions are attributed to achievements in evolution” (ibidem, p. 293-294). Instead, we must ask to what degree the constraints are imposed at the human brain. Now, clearly the invariant principles are for Köhler those that are at the basis mainly of the field effects and of the self-organisation of the physical phenomena in the brain. The perfect parallelism that we can find at the level of the directly accessible world is what is called isomorphism.

However, the principle of the isomorphism itself represents a precise support to the theory of evolution. As Köhler (1938, p. 396, Köhler’s italics) puts it, “the principle of psychophysical isomorphism follows from the principle of evolution”. In my opinion, given the different language and conceptual framework because of three centuries of distance, we can find a close parallelism in what Spinoza says. Köhler’s postulate of invariance is so stated in Spinoza: “In nature, nothing can exist that can oppose itself to his laws, but all acts according to his determinate laws to produce determinate effects in a determinate concatenation, from whom follows that the soul, when it conceives something with truth, proceeds to form objectively the same effects” (TIE XVI, n). The invariance is absolute, and in no circumstance can be changed, neither for God’s will: “When the Scriptures say that this or that was made by God or for God’s will indeed mean only that it was made according to the laws and the order of the nature” (TTP VI,12).

The postulate of the invariance in Spinoza is so clear. Even so, there is also room for the principle of change of constraints. In fact, he says that the laws of the nature cannot change under any circumstances. Nevertheless, somebody can ask: “*how it is possible [...] that in the nature one can see everywhere such a disorder?*” (KV I, 6). Spinoza’s answer is clear: “First, nobody can legitimately affirm that in the nature there is disorder, because nobody knows all the causes of the things, being so able to judge. However, such objection bears from this ignorance, to maintaining universal ideas and thinking that particular things must convene to them to be perfect” (KV I, 7). In other words, it is not true that God doesn’t “care Bucephalus”, but only the horse *in se* (ibidem). Particular things appear different each other, in disorder, evolving, sometimes fruit of a miraculous intervention of God’s will, because the same universal laws act on a series of constraints, avoiding to see in the world an absolute uniformity. We agree with Tanne in saying that indeed we can consider Spinoza’s doctrine, in some sense, an evolutionary theory (see Tanner, 1907).

Unfortunately for the history of Western culture, also this lesson of Spinoza was not understood for at least two centuries. However, one can wonder if psychophysics and Gestalt psychology could be possible without such an antecedent.

With all this (and several other quotation could be taken in support) I don’t want to argue neither that Spinoza anticipated exactly what Fechner, Mach and Gestalt authors said centuries later, nor that they were directed inspired by Spinoza. More simply, I think that the influence of Spinoza’s doctrine on their way to put the fundamental questions of the psychology was possibly deeper than one usually says. Such influence was not confined to a generic holism and optimism. In any case, *Gestalttheorie* and Spinozism are highly compatible, and therefore it is worthwhile to reread Gestalt writing in a Spinozian framework. Last, but not least, I think that all these heredities, Spinoza’s, Fechner’s, and Gestalt, have yet much to say to our present-day psychology.

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